

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : TOYO TIRE &amp; RUBBER CO LTD

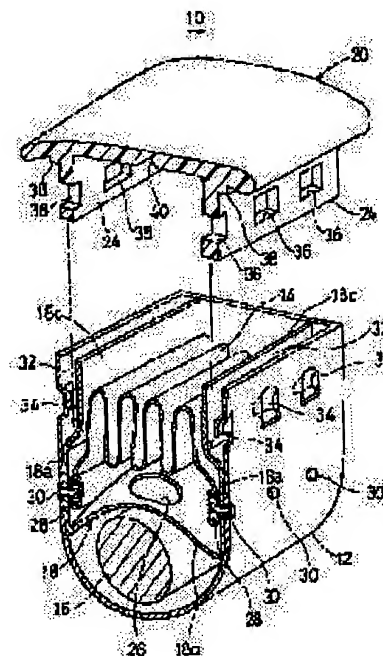
(72)Inventor : BITO KAZUAKI  
YAMAJI TAKESHI  
OZAKI TORU

## (54) AIR-BAG DEVICE

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To install a door in a case at a low cost simply, in an air-bag device stored an air-bag, wherein an inflator and a difuser are stored in the case and also the opening part is covered with a door.

**SOLUTION:** An extension part 18c extending toward a case 12 opening part from the installation part 18a of a difuser 18 installed on the inside surface of the case 12 is formed and an insertion part 32, in which the door installation part 24 of a door 20 is inserted, is formed between this extension part 18c and the inside surface of the case 12. When the door installation part 24 is inserted in the insertion part 32 by installing an engaging projection 34 on the insertion part 32 and an engaging hole 36 on the door installation part 24 respectively, the engaging projection 34 is engaged with the engaging hole 36 and the drop out of the door installation part 24 is regulated and thereby, the door 20 can be installed in the case 12 by only said insertion.



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CLAIMS

[Claim(s)]

[Claim 1] Air bag equipment characterized by providing the following. The inflator which is a gas generator. The air bag which expands by the gas which the aforementioned inflator emits. While containing in a case the diffuser which regulates the flow of the gas which it is allotted between the aforementioned inflator and the aforementioned air bag, and the aforementioned inflator emits in the air bag equipment which comes to cover opening of the aforementioned case at a door the aforementioned door. It has the door attachment section prolonged toward the inside of the aforementioned case. the aforementioned diffuser. It is attached in the medial surface of the aforementioned case, and has the installation section prolonged toward opening of the aforementioned case from the attachment section. between the installation section of the aforementioned diffuser, and the medial surface of the aforementioned case. The engagement section engaged in the pulling-out direction when the insertion section in which the aforementioned door attachment section is inserted is formed and the aforementioned door attachment section is inserted in the aforementioned insertion section and the aforementioned door attachment section at the aforementioned insertion section.

[Claim 2] two or more engagement are engaged with each aforementioned engagement salient, respectively in the aforementioned engagement section which the aforementioned engagement sections prepared in the aforementioned insertion section are two or more engagement salients prepared in the installation section or the aforementioned case of the aforementioned diffuser, and was prepared in the aforementioned door attachment section — the air bag equipment according to claim 1 characterized by being a hole

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the air bag equipment which is crew's protective device in vehicles etc.

[0002]

[Description of the Prior Art] Before, air bag equipment may be arranged in an instrument panel, a steering wheel center section, etc. for the crew protection of the vehicle interior of a room at the time of the collision of vehicles etc.

[0003] Such air bag equipment comes to cover the case opening at a door, and gas occurs from an inflator at the time of a vehicles collision, an air bag expands (inflation), and it is constituted so that this may respond to crew's body while containing in a case an air bag, the inflator which is a gas generator, and the diffuser which regulates the flow of the gas which this inflator emits generally. Here, a diffuser is arranged between an inflator and an air bag and regulates the flow of the gas sent into an air bag from an inflator so that an air bag may expand good at the time of an inflation.

[0004] For example, in the conventional air bag equipment 100 shown in drawing 5, in the case 101 which carries out opening to the upper part, an inflator 102 is allotted to the pars basilaris ossis occipitalis, a diffuser 103 is attached in case 101 medial surface with welding, a rivet, or a bolt nut so that the upper part may be covered, and further, after the air bag 104 has been folded up by the upper part, it is attached with the rivet 106 through the bag retainer 105 at case 101 medial surface. And opening of a case 101 is covered by the door 107. This door 107 is attached in case 101 opening by allotting the door installation section 108 caudad installed from the inferior surface of tongue to the superficies side of the opening marginal part of a case 101, and fixing to the opening marginal part concerned by the holddown members 109, such as a rivet or a bolt nut.

[0005]

[Problem(s) to be Solved by the Invention] Like the above-mentioned conventional air bag equipment 100, with the structure of attaching a door 107 in a case 101 by the holddown member 109, since the number of parts increases by this holddown member 109, there is a problem that there are many shipfitters of this door 107 and case 101, highly [ cost ].

[0006] Then, this invention aims at offering a low cost and the air bag equipment which can be performed simply for anchoring of the door to a case.

[0007]

[Means for Solving the Problem] The inflator whose air bag equipment of the claim 1 of this invention is a gas generator, While containing in a case the diffuser which regulates the flow of the gas which it is allotted between the air bag which expands by the gas which the aforementioned inflator emits, and the aforementioned inflator and the aforementioned air bag, and the aforementioned inflator emits In the air bag equipment which comes to cover opening of the aforementioned case at a door the aforementioned door It has the door attachment section prolonged toward the inside of the aforementioned case. the aforementioned diffuser It is attached in the medial surface of the aforementioned case, and has the installation section

prolonged toward opening of the aforementioned case from the attachment section. between the installation section of the aforementioned diffuser, and the medial surface of the aforementioned case The insertion section in which the aforementioned door attachment section is inserted is formed, and when the aforementioned door attachment section is inserted in the aforementioned insertion section and the aforementioned door attachment section at the aforementioned insertion section, the engagement section engaged in the pulling-out direction is prepared.

[0008] With this air bag equipment, in case a door is attached in case opening at the time of manufacture, the door attachment section is inserted in the insertion section formed between the medial surface of a case, and the installation section of a diffuser. The engagement section prepared in the insertion section and the door attachment section, respectively is engaged mutually, and pulling out of the door attachment section from the insertion section is regulated by this insertion. Thus, since it can only insert in the insertion section in which the door attachment section was prepared by case opening and a door can be attached in a case, when attachment eliminated the holddown member simply compared with the conventional thing, the number of parts decreases and, therefore, it is a low cost.

[0009] two or more engagement engaged with each aforementioned engagement salient, respectively in the aforementioned engagement section which the air bag equipment of a claim 2 is two or more engagement salients by which the aforementioned engagement section prepared in the aforementioned insertion section was prepared in the installation section or the aforementioned case of the aforementioned diffuser in the air bag equipment of a claim 1, and was prepared in the aforementioned door attachment section — it carries out that it is a hole as the feature

[0010]

[Embodiments of the Invention] Hereafter, the air bag equipment 10 concerning one example of this invention is explained based on drawing 1 -4.

[0011] Drawing 1 is the perspective diagram of this air bag equipment 10, drawing 2 is the drawing of longitudinal section, drawing 3 is the decomposition cross-section perspective diagram of this equipment 10, and drawing 4 is an important section cross section at the time of manufacture of this equipment 10.

[0012] This air bag equipment 10 is arranged in the instrument panel ahead of [ of an automobile ] a passenger seat, in the case 12 which carries out opening to the upper part, an air bag 14, an inflator 16, and a diffuser 18 are contained, and opening of a case 12 is covered by the door 20.

[0013] Opening of the case 12 is carried out to the upper part, and a horizontal section is a rectangular metal core-box container, and it has a curve side at the pars basilaris ossis occipitalis, and is formed in the shape of longitudinal-section abbreviation for U characters. the insertion for the pillar-like inflator 16 being contained by the pars basilaris ossis occipitalis of this curved case 12, and equipping the unilateral wall of a case 12 with an inflator 16 — the hole 22 is formed

[0014] or [ an air bag 14 being a bag body which is constituted by the textile fabrics made from a synthetic fiber etc., carries out opening caudad, and bulges up, and folding it up above an inflator 16 ] — or it is allotted in the state where it involved in

[0015] It connects with the non-illustrated control section, and in predetermined conditions, such as a collision of vehicles, an inflator 16 generates gas in a case 12, and bulges an air bag 14 in the opening shell exterior of a case 12.

[0016] A diffuser 18 is metal specification-part material which regulates the flow of the gas which an inflator 16 emits, is arranged between an inflator 16 and an air bag 14, and is attached in the medial surface of a case 12 with welding, the rivet, or the bolt nut.

[0017] A door 20 is the lid material made of wrap synthetic resin about opening of a case 12, and constitutes the shape of an abbreviation rectangle corresponding to the aforementioned opening. The door attachment sections 24 and 24 of the tabular caudad prolonged in the long side side are formed in the inferior surface of tongue of this door 18.

[0018] The attachment sections 18a and 18a of the tabular of the right and left which attached the diffuser 18 in both the medial surfaces by the side of the long side in the vertical direction

abbreviation center section of the case 12, and were fixed as shown in drawing 2, Batch section 18b which divides the pars-basilaris-ossis-occipitalis space and the headroom of the case 12 where connected the soffit of the attachment sections 18a and 18a of these right and left, and the inflator 16 was allotted. It consists of the installation sections 18c and 18c of the right and left installed to the opening upper surface of a case 12, respectively from the upper limit of the attachment sections 18a and 18a on either side, and as shown in drawing 3, it is formed in the abbreviation same configuration along with the longitudinal direction of a case 12.

[0019] The opening periphery section of an air bag 14 is attached in the abbreviation center section with rivets 30 and 30 at the attachment sections 18a and 18a through the bag retainers 28 and 28 prolonged along with the longitudinal direction of a case 12.

[0020] The gas outlet 26 which opens the headroom of the pars-basilaris-ossis-occipitalis space of a case 12 for free passage is formed in nothing and its center section in the tabular which curves convex so that batch section 18b may face the curve side of the base of a case 12.

[0021] Installation section 18c acts as a hinge region which bends the tabular crooked toward the method of the inside of a case 12 so that it might estrange with case 12 side attachment wall from the upper limit 31 of attachment section 18a considering nothing and this upper limit 31 as the supporting point. Between these installation sections 18c and 18c and the medial surface of a case 12, the insertion gaps 32 and 32 where the door attachment sections 24 and 24 of a door 20 are inserted are formed at the predetermined intervals, and these insertion gaps 32 and 32 are located in the upper part of a case 12, and are carrying out opening to the upper part.

[0022] Two or more engagement salients 34 and 34 — which project in the insertion gap 32 are installed in the opening periphery section by the side of the long side of a case 12 side by side along the opening side of a case 12. This engagement salient 34 is formed by sticking on a rectangle and coming from the side attachment wall of a case 12, and as shown in drawing 2, from the side attachment wall concerned, it inclines caudad and it has an inner direction and the crooked configuration which is prolonged further caudad.

[0023] engagement of two or more rectangles which fit into the door attachment sections 24 and 24 at the engagement salient 34 of these plurality, and 34 —, respectively as shown in drawing 2 and 3 — a hole 36 and 36 — are formed and the engagement to which each engagement salient 34 corresponds — it allots in a hole 36 — having — the soffit — engagement — pulling out of the door attachment section 24 is regulated by contacting the inferior surface of tongue of a hole 36

[0024] A sign 38 is a stop step which regulates the movement to the lower part of a door 20, and is formed in the root section of the outside of the door attachment sections 24 and 24. These stop steps 38 and 38 are performing positioning with a case 12 and a door 20 while they contact the upper limit of a case 12 and regulate the movement to the lower part of a door 20.

[0025] A sign 40 is Tea who cleaves with the pressure of gas at the time of an inflation, and is formed in the inferior surface of tongue of a door 20. By this Tea's 40 cleavage, an air bag 14 bulges out of a case 12.

[0026] As mentioned above, in case the becoming air bag equipment 10 is assembled, an air bag 14 is first attached in the attachment sections 18a and 18a and the case 12 of a diffuser 18 by the rivet 30 and 30 — through the bag retainers 28 and 28. Then, as shown in drawing 3, the door attachment sections 24 and 24 of a door 20 are inserted in the insertion gaps 32 and 32, and a door 20 is attached in opening of a case 12.

[0027] The operation at the time of attachment of this door 20 is explained in full detail by drawing 4.

[0028] If the door attachment section 24 is inserted in the insertion gap 32 from the upper part as shown in drawing 4 (a), the soffit of the door attachment section 24 will be in charge of the engagement salient 34. Then, by using the upper limit 31 of attachment section 18a as the supporting point, while the soffit of this door attachment section 24 bends toward the inner direction of a case 12 as it is led to the inclined plane of the engagement salient 34 and Arrow k shows as shown in drawing 4 (b), installation section 18c of a diffuser 18 bends toward the inner direction of a case 12, as Arrow j shows. thereby — the door attachment section 24 — the

insertion gap 32 — further — caudad — resulting — engagement — when a hole 36 comes to the position of the engagement salient 34, it is shown in drawing 4 (c) — as — the engagement salient 34 — engagement — it advances into a hole 36, installation section 18c of a diffuser 18 and the case attachment section 24 bend, and a state is recovered and the soffit of the engagement salient 34 — engagement — while contacting the inferior surface of tongue of a hole 36, the upper limit of a case 12 contacts the inferior surface of tongue of the stop step 38. Thereby, attachment fixation of the door 20 is carried out at opening of a case 12.

[0029] Since it only inserts in the insertion gaps 32 and 32 in which the door attachment sections 24 and 24 were formed by case 12 opening, the door attachment sections 24 and 24 are fixed in the insertion gap 32 and 32 and a door 20 is attached and fixed to a case 12 in case a door 20 is attached in opening of a case 12 at the time of the assembly as it is air bag equipment 10 of this example mentioned above, this attachment is simple. Moreover, since fixation with a door 20 and a case 12 is possible, the number of parts can be cut down and it is a low cost without holddown members, such as a rivet and a bolt nut.

[0030] Moreover, since installation section 18c of a diffuser 18 is made into the hinge mechanism in which it can bend at the time of insertion of the door attachment section 24, the door attachment section 24 can be easily inserted to the back of the insertion gap 32 with the hinge mechanism of the door attachment section 24. Therefore, a door 20 can be easily attached by one-touch by an operator's hand, and anchoring devices, such as impact, are unnecessary. Since anchoring of such one-touch is possible, it is easy to really [ air bag door ] attach also in an instrument panel.

[0031] In addition, in the above example, although considered as the composition which forms two or more engagement salients 34 in the side attachment wall of a case 12, you may form these engagement salients 34 of two or more in the installation sections 18c and 18c of a diffuser 18.

[0032]

[Effect of the Invention] Since it can only insert in the insertion section in which the door attachment section of a door was prepared by opening of a case at the time of the manufacture as it is air bag equipment of this invention and a door can be attached in case opening, there are few parts simply and the anchoring is a low cost.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective diagram of the air bag equipment 10 concerning one example of this invention.

[Drawing 2] It is drawing of longitudinal section of air bag equipment 10.

[Drawing 3] It is the decomposition cross-section perspective diagram of air bag equipment 10.

[Drawing 4] (a) - (c) is the important section cross section having shown the state at the time of attaching a door 20 in a case 12 at the time of manufacture of air bag equipment 10.

[Drawing 5] It is drawing of longitudinal section of conventional air bag equipment.

[Description of Notations]

10 .... Air bag equipment

12 .... Case

14 .... Air bag

16 .... Inflator

18 .... Diffuser

18a — The attachment section of a diffuser 18

18c — The installation section of a diffuser 18

20 .... Door

24 .... Door attachment section

32 .... Insertion gap

34 .... Engagement salient

36 .... engagement — a hole

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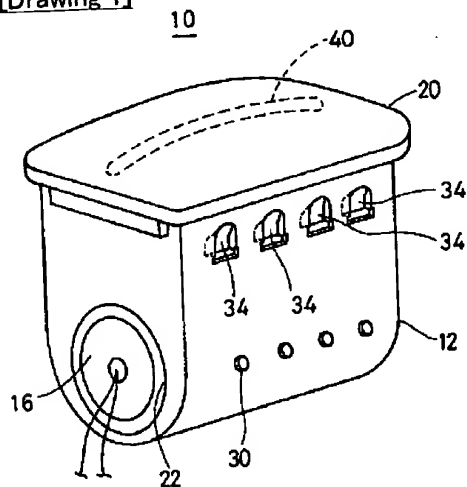
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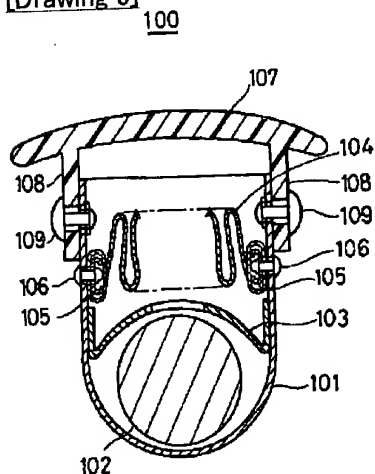
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## DRAWINGS

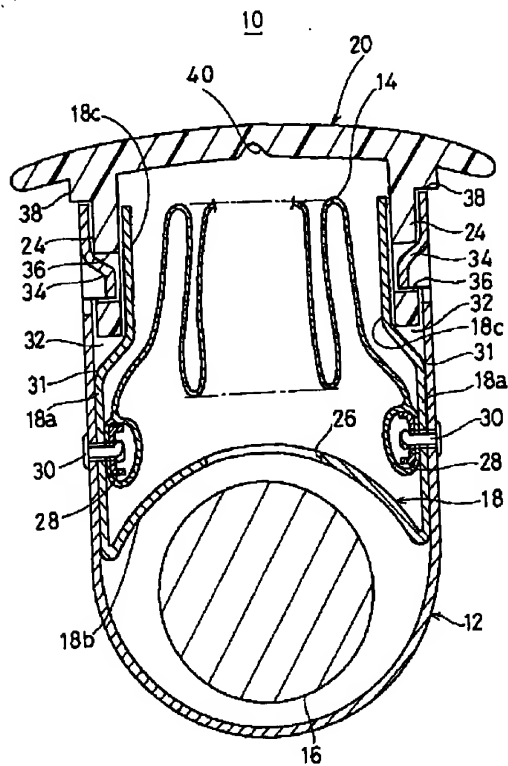
[Drawing 1]



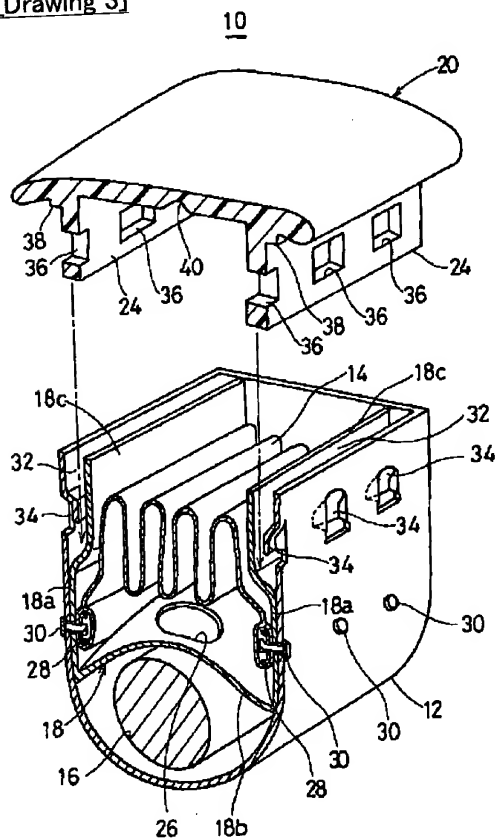
[Drawing 5]



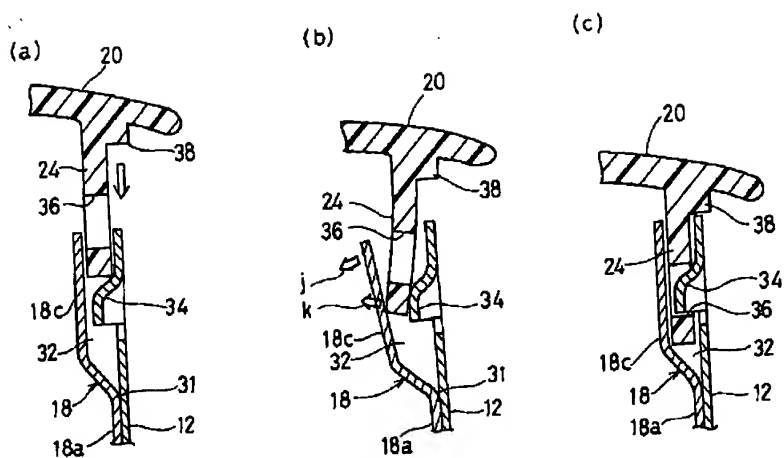
[Drawing 2]



[Drawing 3]



[Drawing 4]



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(71) 出願人 000003148

東洋ゴム工業株式会社

大阪府大阪市西区江戸堀1丁目17番18号

(72) 発明者 尾藤 和彰

大阪府大阪市西区江戸堀1丁目17番18号

東洋ゴム工業株式会社内

(72) 発明者 山地 猛

大阪府大阪市西区江戸堀1丁目17番18号

東洋ゴム工業株式会社内

(72) 発明者 尾崎 徹

大阪府大阪市西区江戸堀1丁目17番18号

東洋ゴム工業株式会社内

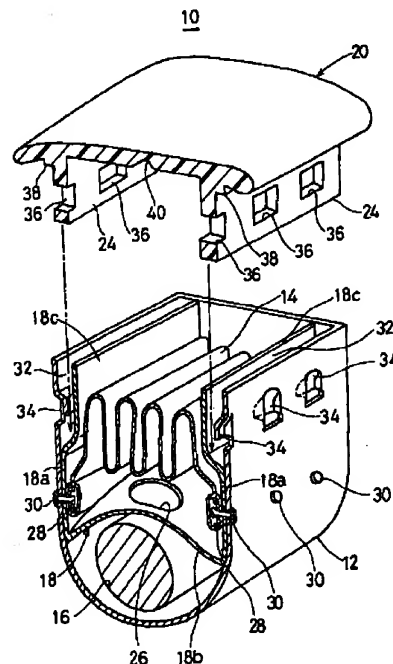
(74) 代理人 弁理士 薦田 璋子 (外1名)

(54) 【発明の名称】 エアバッグ装置

(57) 【要約】

【課題】 エアバッグとインフレーターとディフューザとをケース内に収納するとともに、その開口部をドアで覆ってなるエアバッグ装置において、ケースへのドアの取付けを、低コストかつ簡易に行なうことのできるものを提供する。

【解決手段】 ケース12の内側面に取付けられたディフューザ18の取付部18aからケース12開口部に向かって延びる延設部18cを形成し、この延設部18cとケース12の内側面との間に、ドア20のドア取付部24が挿入される挿入部32を形成し、挿入部32に係合突起34、ドア取付部24に係合孔36をそれぞれ設けて、ドア取付部24を挿入部32に挿入したときに、係合突起34と係合孔36とが係合して、ドア取付部24の抜脱を規制し、これにより、前記挿入のみでドア20をケース12に取付け可能とした。



## 【特許請求の範囲】

【請求項1】 ガス発生器であるインフレーターと、前記インフレータの発するガスにより膨張するエアバッグと、前記インフレーターと前記エアバッグとの間に配されて前記インフレータの発するガスの流れを規制するディフューザとをケース内に収納するとともに、前記ケースの開口部をドアで覆ってなるエアバッグ装置において、前記ドアが、前記ケースの内側に向って延びるドア取付部を有し、

前記ディフューザが、前記ケースの内側面に取付けられて、その取付部から前記ケースの開口部に向って延びる延設部を有し、

前記ディフューザの延設部と前記ケースの内側面との間に、前記ドア取付部が挿入される挿入部が形成され、前記挿入部と前記ドア取付部とに、前記ドア取付部を前記挿入部に挿入したときにその抜脱方向に係合する係合部が設けられたことを特徴とするエアバッグ装置。

【請求項2】 前記挿入部に設けられた前記係合部が、前記ディフューザの延設部又は前記ケースに設けられた複数の係合突起であり、

前記ドア取付部に設けられた前記係合部が、前記各係合突起とそれぞれ係合する複数の係合孔であることを特徴とする請求項1記載のエアバッグ装置。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】 本発明は、車両等における乗員の保護装置であるエアバッグ装置に関する。

## 【0002】

【従来の技術】 従来より、車両等の衝突時における車室内の乗員保護のため、インストルメントパネルやステアリングホイール中央部などにエアバッグ装置を配設することがある。

【0003】 このようなエアバッグ装置は、一般に、エアバッグと、ガス発生器であるインフレーターと、該インフレータの発するガスの流れを規制するディフューザとをケース内に収納するとともに、そのケース開口部をドアで覆ってなり、車両衝突時に、インフレーターからガスが発生してエアバッグが膨張（インフレーション）し、これにより乗員の体を受け止めるよう構成されている。ここで、ディフューザは、インフレーション時にエアバッグが良好に膨張するように、インフレーターとエアバッグとの間に配されて、インフレーターからエアバッグに送り込まれるガスの流れを規制する。

【0004】 例えば、図5に示す従来のエアバッグ装置100において、上方に開口するケース101内には、その底部にインフレーター102が配され、その上方を覆うようにディフューザ103が溶接、リベットもしくはボルトナットによりケース101内側面に取付けられ、さらに、その上方にエアバッグ104が折畳まれた状態でバッグリテーナ105を介してリベット106により

ケース101内側面に取付けられている。そして、ケース101の開口部がドア107により覆われている。このドア107は、その下面から下方に延設されたドア延設部108を、ケース101の開口縁部の外面側に配して、リベットもしくはボルトナット等の固定部材109により当該開口縁部に固定することによって、ケース101開口部に取付けられている。

## 【0005】

【発明が解決しようとする課題】 上記従来のエアバッグ装置100のように、固定部材109によりドア107をケース101に取付ける構造では、この固定部材109により部品数が多くなるためコストが高く、また、このドア107とケース101との取付工数が多いという問題がある。

【0006】 そこで、本発明は、ケースへのドアの取付けを、低コストかつ簡易に行なうことのできるエアバッグ装置を提供することを目的とする。

## 【0007】

【課題を解決するための手段】 本発明の請求項1のエアバッグ装置は、ガス発生器であるインフレーターと、前記インフレータの発するガスにより膨張するエアバッグと、前記インフレーターと前記エアバッグとの間に配されて前記インフレータの発するガスの流れを規制するディフューザとをケース内に収納するとともに、前記ケースの開口部をドアで覆ってなるエアバッグ装置において、前記ドアが、前記ケースの内側に向って延びるドア取付部を有し、前記ディフューザが、前記ケースの内側面に取付けられて、その取付部から前記ケースの開口部に向って延びる延設部を有し、前記ディフューザの延設部と前記ケースの内側面との間に、前記ドア取付部が挿入される挿入部が形成され、前記挿入部と前記ドア取付部とに、前記ドア取付部を前記挿入部に挿入したときにその抜脱方向に係合する係合部が設けられたものである。

【0008】 このエアバッグ装置では、製造時において、ケース開口部にドアを取付ける際には、そのドア取付部を、ケースの内側面とディフューザの延設部との間に形成された挿入部に挿入する。この挿入により、挿入部とドア取付部とにそれぞれ設けられた係合部が互いに係合して、挿入部からのドア取付部の抜脱が規制される。このように、ドア取付部をケース開口部に設けられた挿入部に挿入するだけで、ドアをケースに取付けることができるので、取付作業が簡易であり、また、従来のものに比べて固定部材を排したことにより部品数が少なくなり、よって低コストである。

【0009】 請求項2のエアバッグ装置は、請求項1のエアバッグ装置において、前記挿入部に設けられた前記係合部が、前記ディフューザの延設部又は前記ケースに設けられた複数の係合突起であり、前記ドア取付部に設けられた前記係合部が、前記各係合突起とそれぞれ係合する複数の係合孔であることを特徴とする。

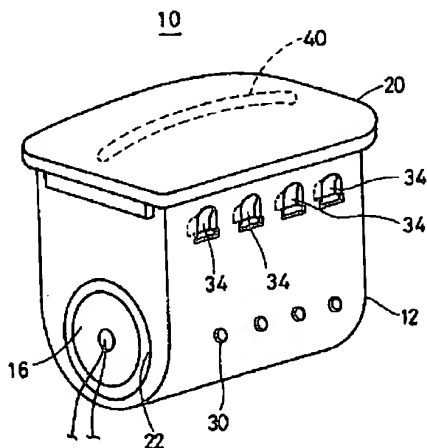
【0028】図4(a)に示すように、ドア取付部24を挿入間隙32に上方から挿入すると、ドア取付部24の下端が係合突起34に当る。すると、図4(b)に示すように、このドア取付部24の下端が、係合突起34

の傾斜面に導かれて、矢印kで示すように、ケース12の内方に向ってたわむとともに、ディフューザ18の延設部18cが、取付部18aの上端31を支点として、矢印jで示すように、ケース12の内方に向ってたわむ。これにより、ドア取付部24は、挿入間隙32のさらに下方に至り、係合孔36が係合突起34の位置にきたときに、図4(c)に示すように、係合突起34が係合孔36内に進入して、ディフューザ18の延設部18c及びケース取付部24がたわみ状態から回復する。そして、係合突起34の下端が係合孔36の下面に当接するとともに、ケース12の上端が係止段部38の下面に当接する。これにより、ドア20がケース12の開口部に取付固定される。

【0029】上述した本実施例のエアバッグ装置10であると、その組立て時において、ドア20をケース12の開口部に取付ける際に、そのドア取付部24、24をケース12開口部に設けられた挿入間隙32、32に挿入するだけで、ドア取付部24、24が挿入間隙32、32内に固定されて、ドア20がケース12に取付け固定されるので、この取付作業が簡易である。また、リベットやボルトナット等の固定部材なしで、ドア20とケース12との固定が可能であるため、部品数を削減でき、低コストである。

【0030】また、ディフューザ18の延設部18cを、ドア取付部24の挿入時にたわむことができるヒンジ機構としているため、ドア取付部24のヒンジ機構とともに、ドア取付部24を挿入間隙32の奥まで簡単に挿入することができる。よって、ドア20を作業者の手で容易にワンタッチで取付けることができ、インパクト等の取付け機器が不要である。このようなワンタッチの取付けが可能であるため、エアバッグドア一体インストールメントパネルにも取付けることが容易である。

【図1】



【0031】なお、以上の実施例においては、ケース12の側壁に複数の係合突起34を形成する構成としたが、この複数の係合突起34は、ディフューザ18の延設部18c、18cに設けてもよい。

## 【0032】

【発明の効果】本発明のエアバッグ装置であると、その製造時において、ドアのドア取付部をケースの開口部に設けられた挿入部に挿入するだけで、ドアをケース開口部に取付けることができるので、その取付け作業が簡易であり、また、部品数が少なく低コストである。

## 【図面の簡単な説明】

【図1】本発明の一実施例に係るエアバッグ装置10の斜視図である。

【図2】エアバッグ装置10の縦断面図である。

【図3】エアバッグ装置10の分解断面斜視図である。

【図4】(a)～(c)は、エアバッグ装置10の製造時において、ドア20をケース12に取付ける際の状態を示した要部断面図である。

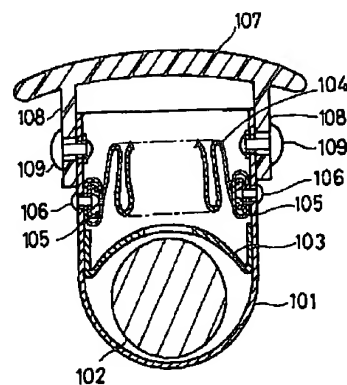
【図5】従来のエアバッグ装置の縦断面図である。

## 【符号の説明】

- 10……エアバッグ装置
- 12……ケース
- 14……エアバッグ
- 16……インフレーター
- 18……ディフューザ
- 18a…ディフューザ18の取付部
- 18c…ディフューザ18の延設部
- 20……ドア
- 24……ドア取付部
- 32……挿入間隙
- 34……係合突起
- 36……係合孔

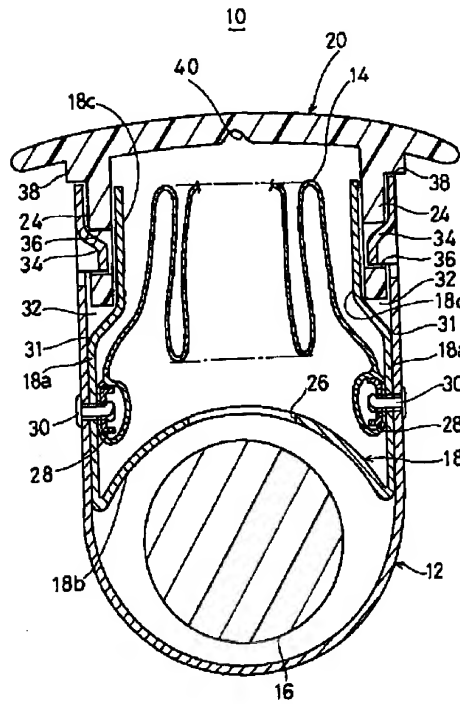
【図5】

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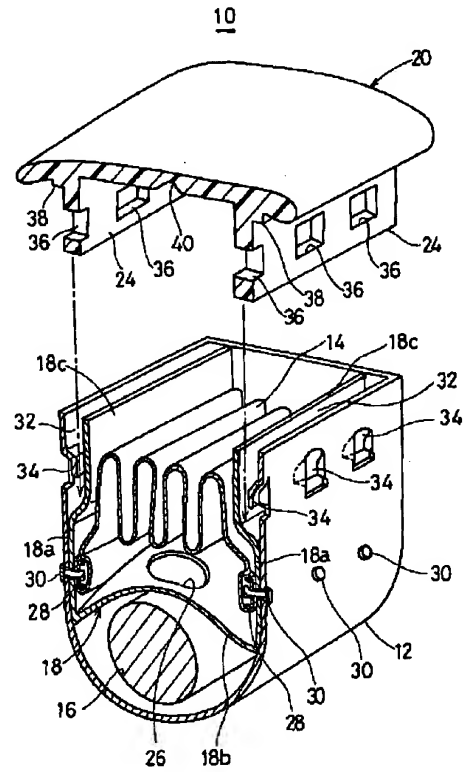




【図2】



【図3】



【図4】

